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(54) Security barrier

(57) Security apparatus in the form of external barrier means 1 is provided on a car C. Barrier means 1 includes pivotable side barriers 2, 3 and front barrier 4 attached to a roof rack of the vehicle. The barriers 2, 3, 4 can be moved between a raised position and a lowered, locked positions in which the side barriers 2, 3 overlap the doors of the car C, preventing the doors from being opened, and the front barrier overlaps the front windscreen.

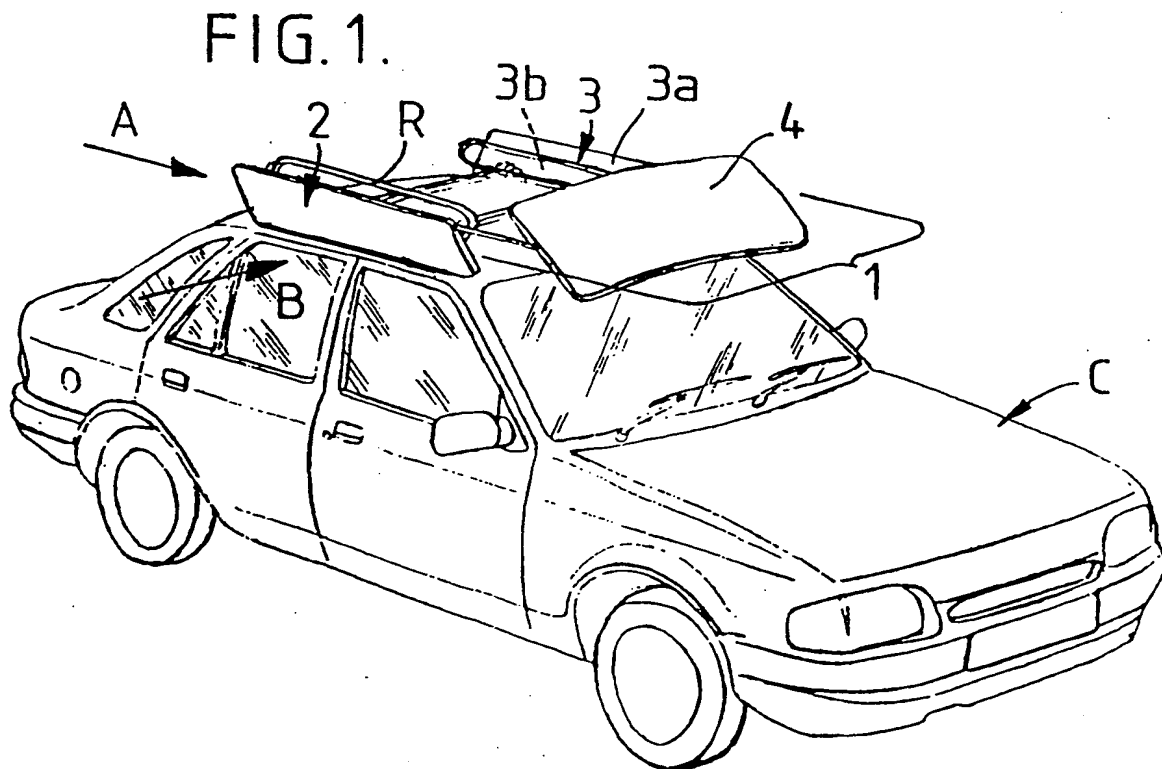


FIG. 1.

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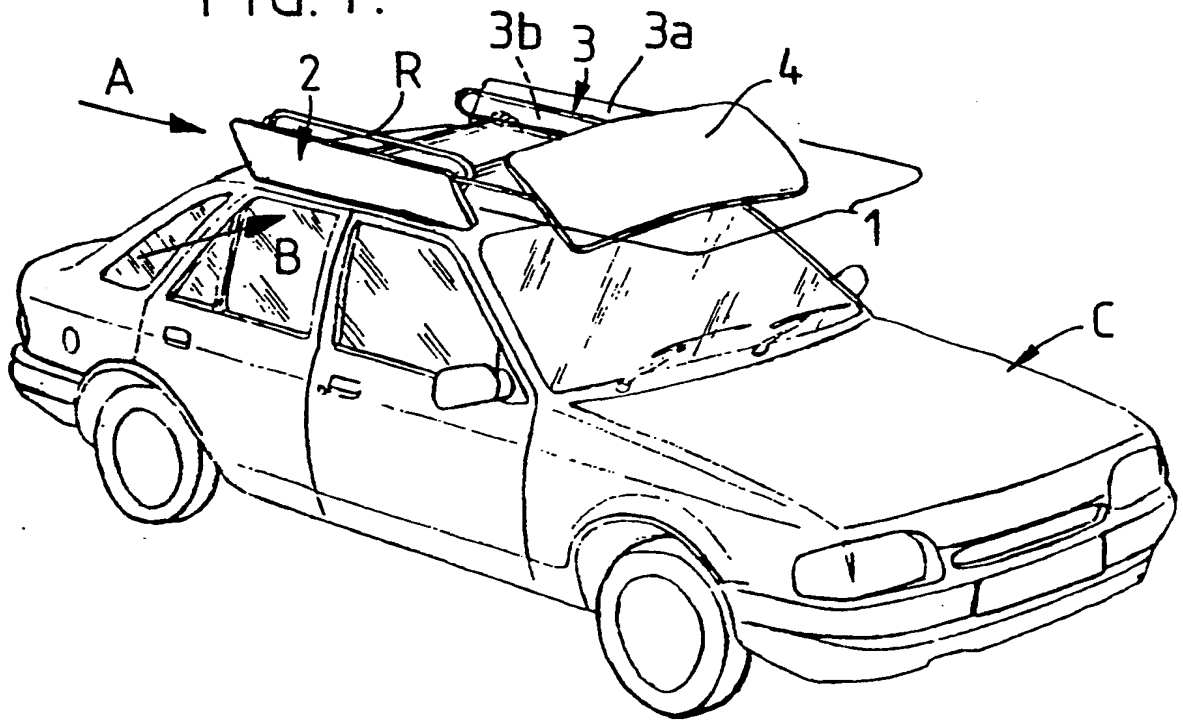


FIG. 6.

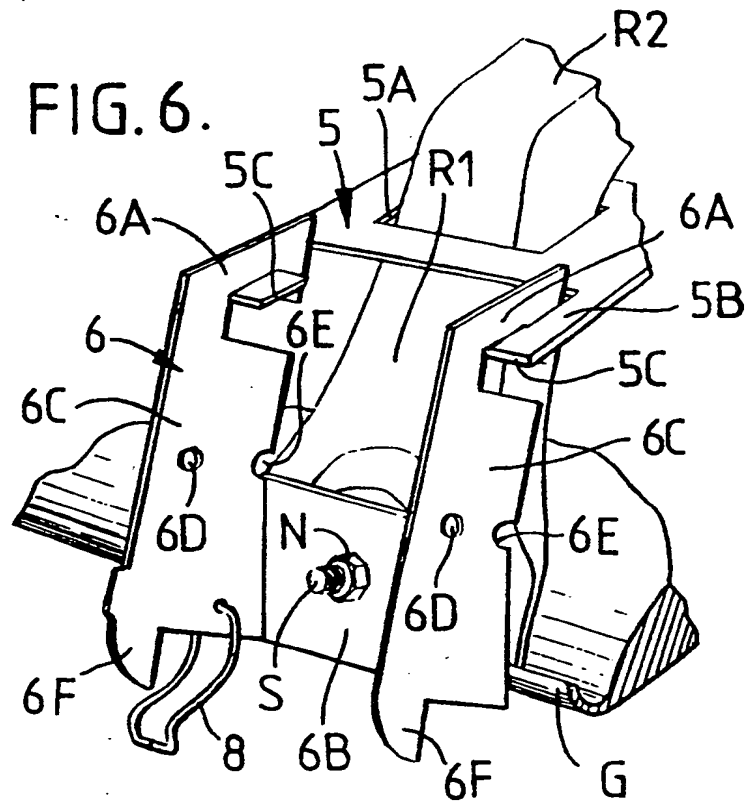


FIG. 2.

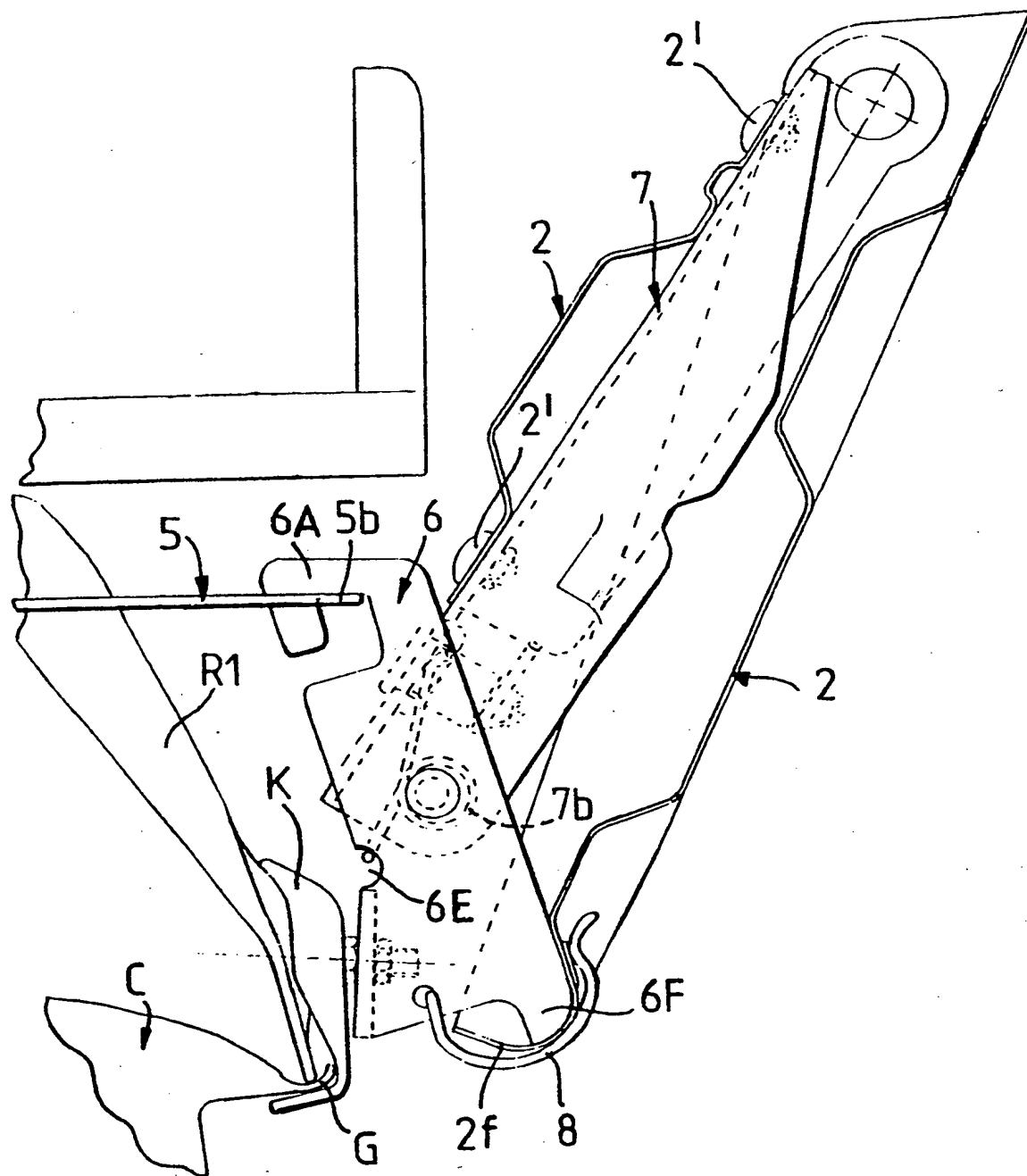
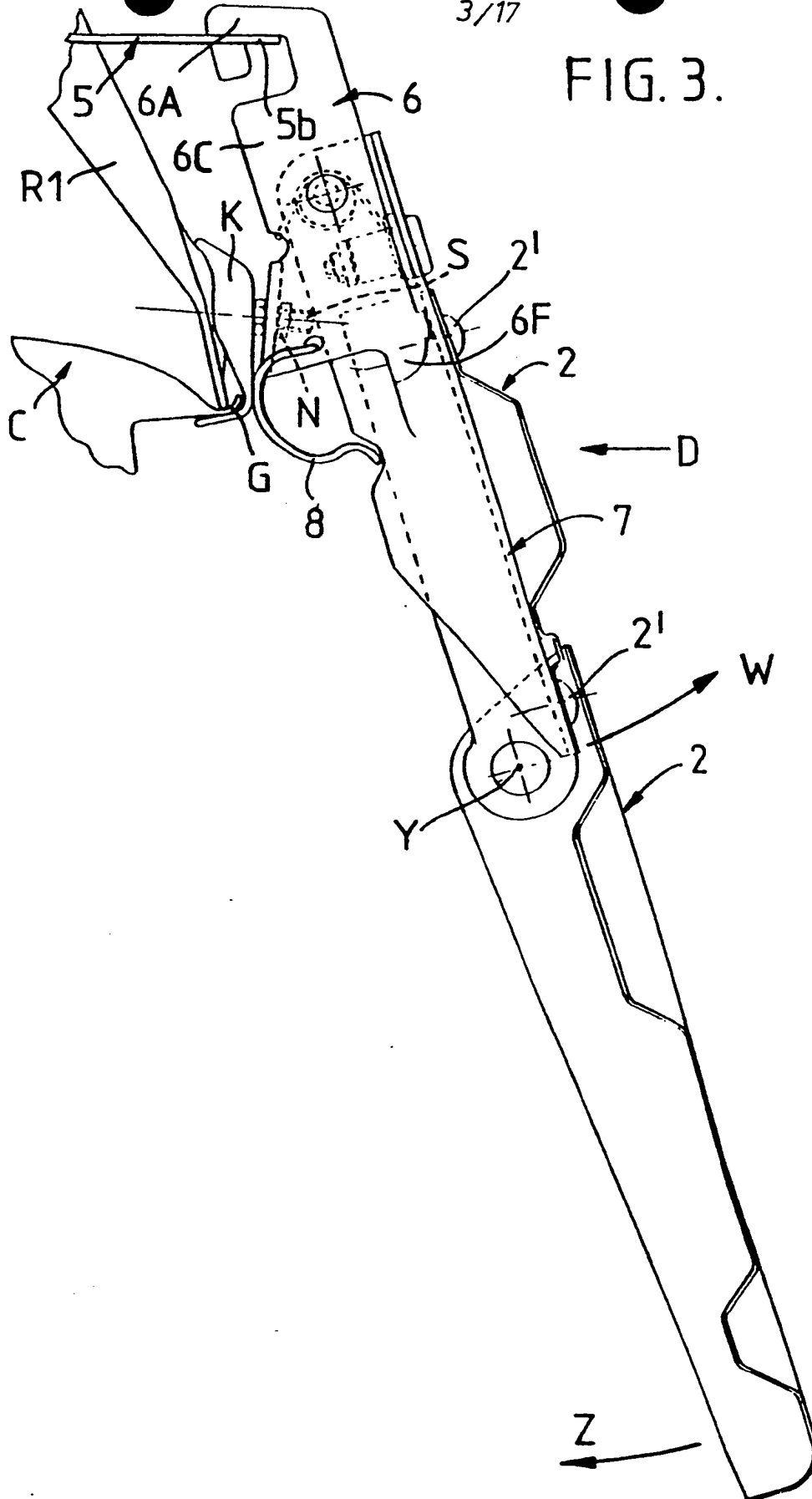


FIG. 3.



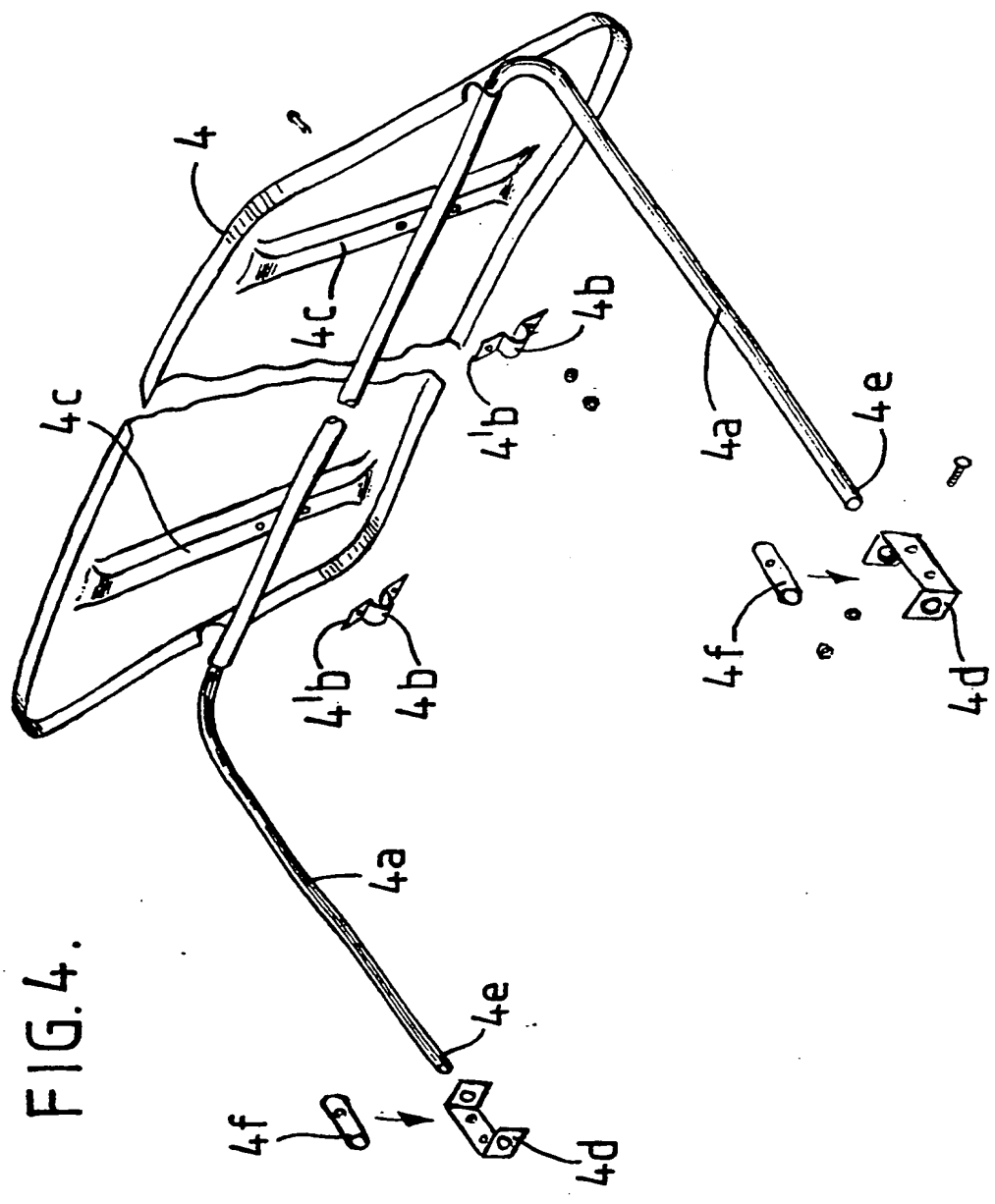


FIG. 4.

FIG. 5.

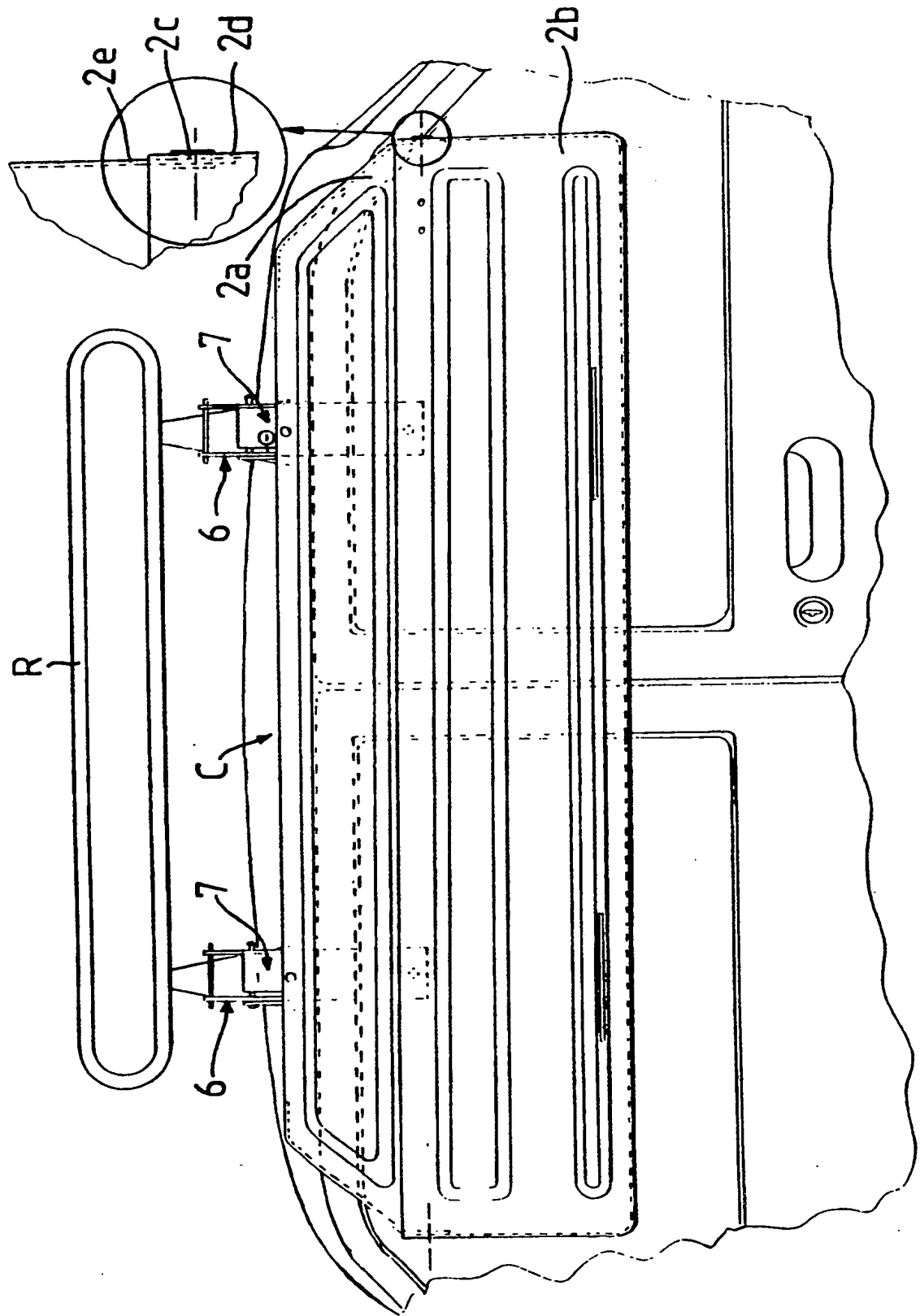


FIG. 7.

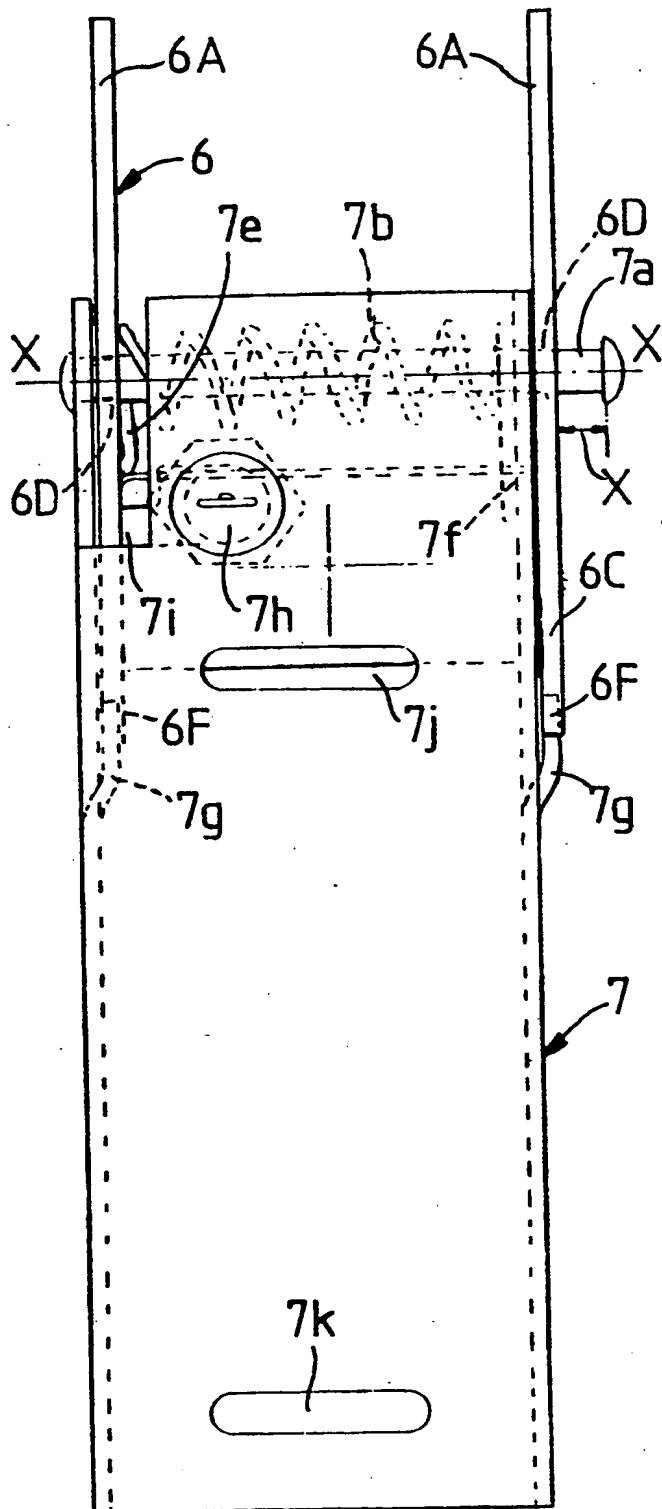


FIG. 8.

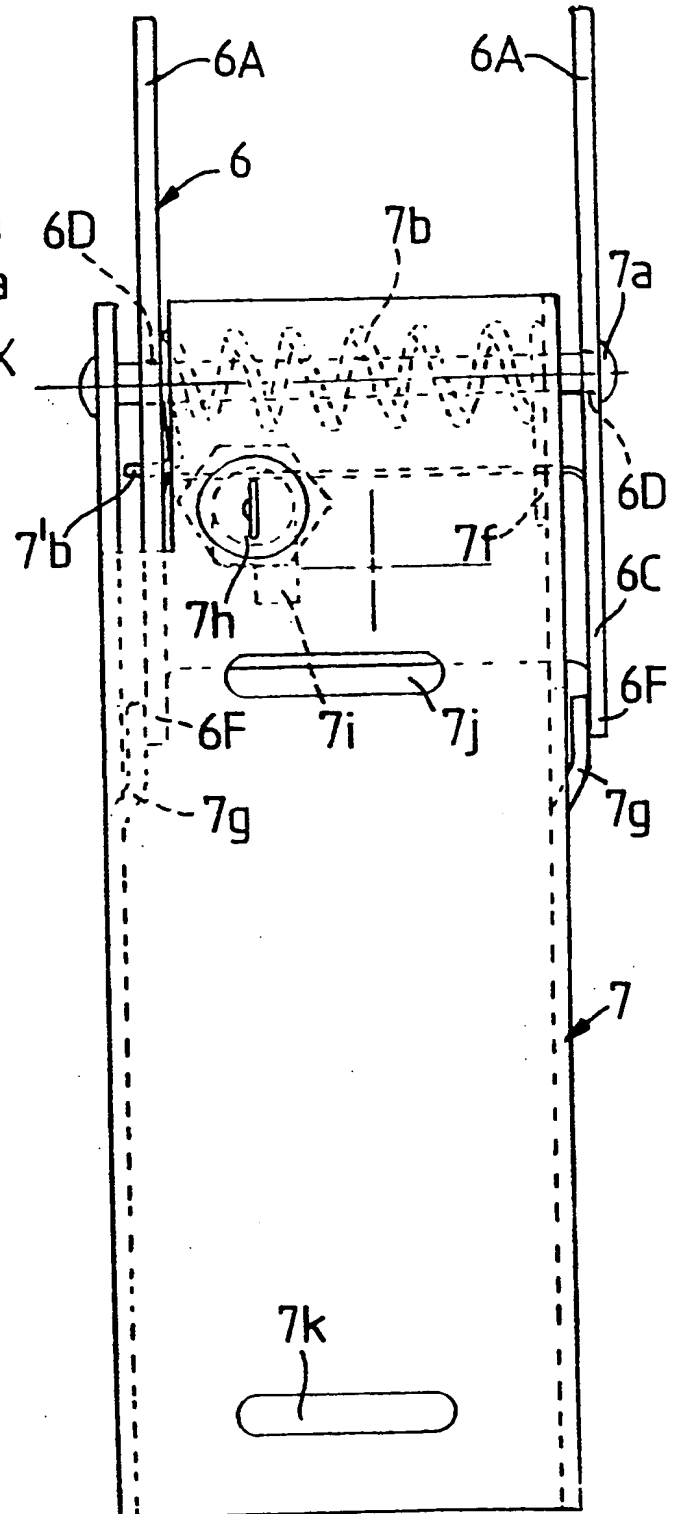


FIG. 9.

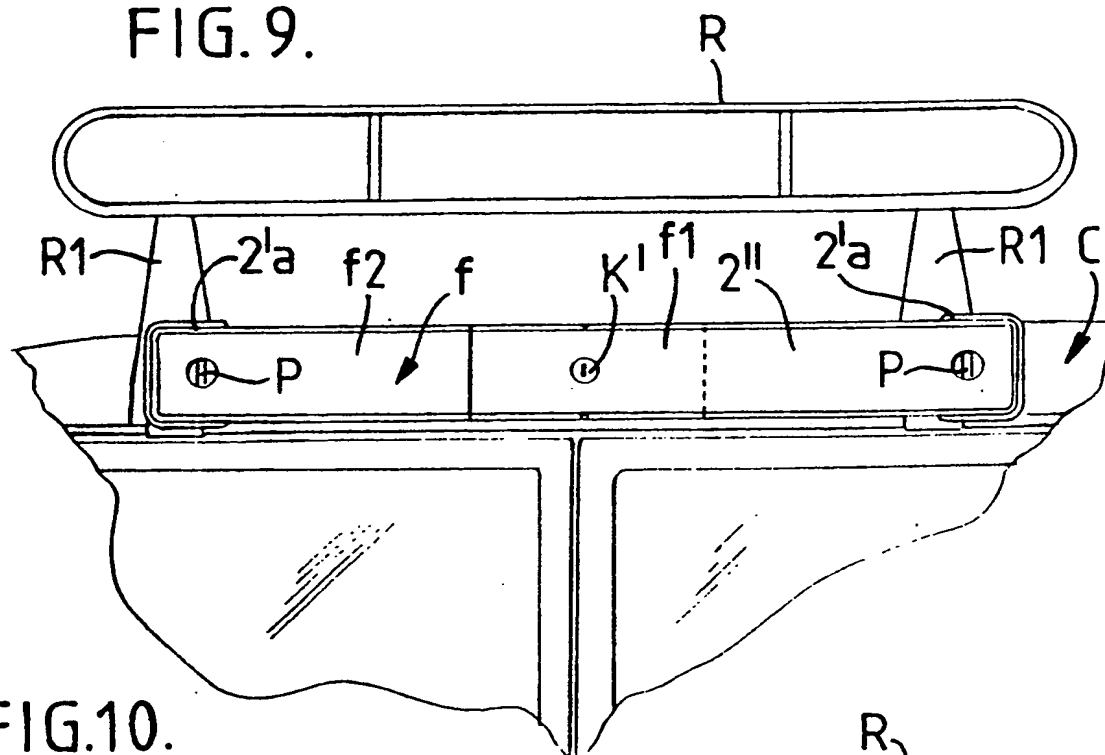


FIG. 10.

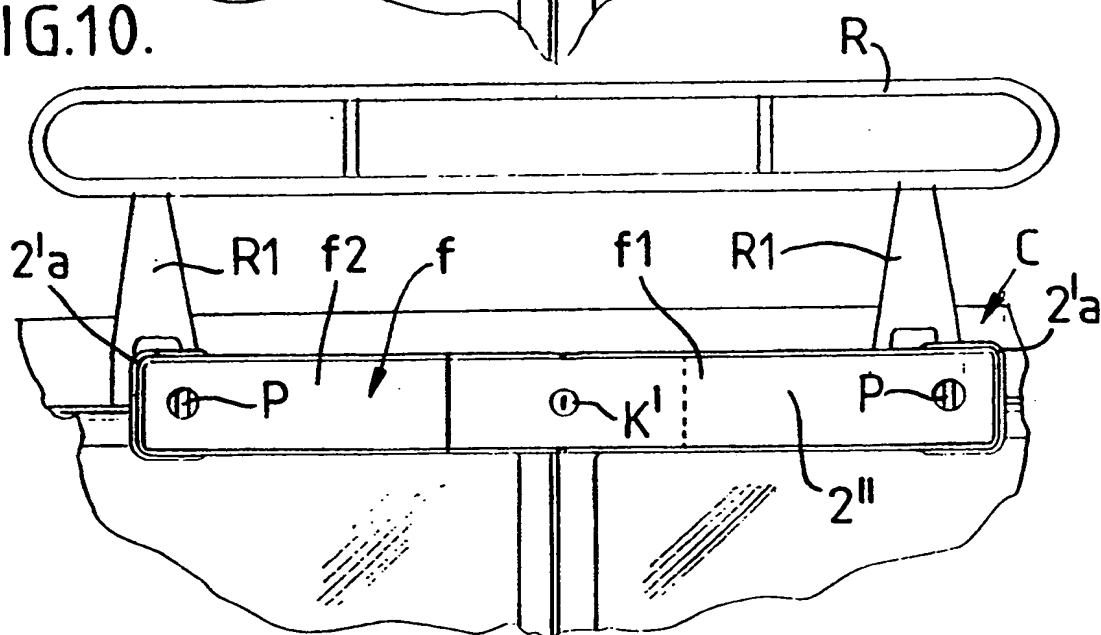


FIG.11.

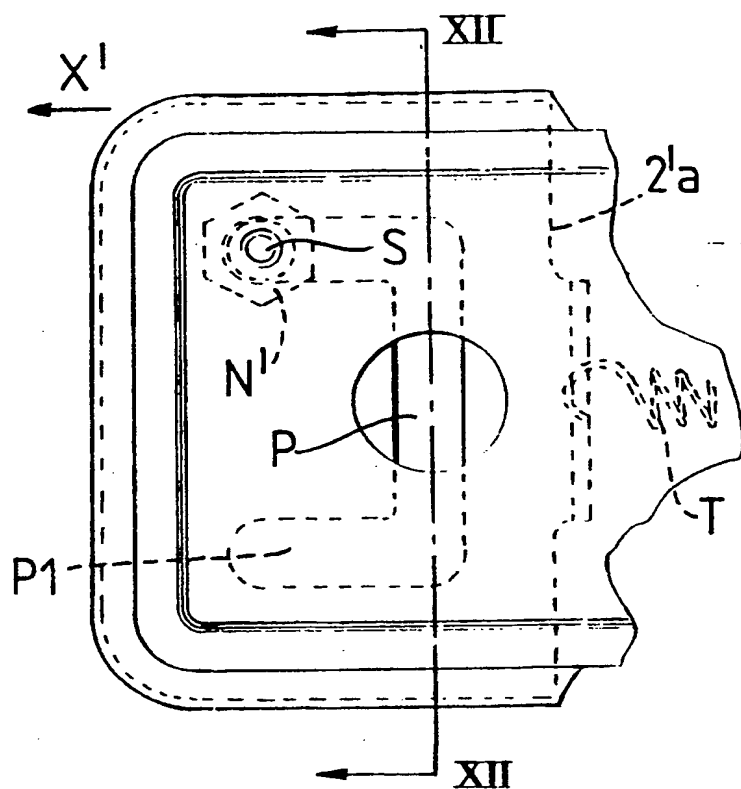


FIG.12.

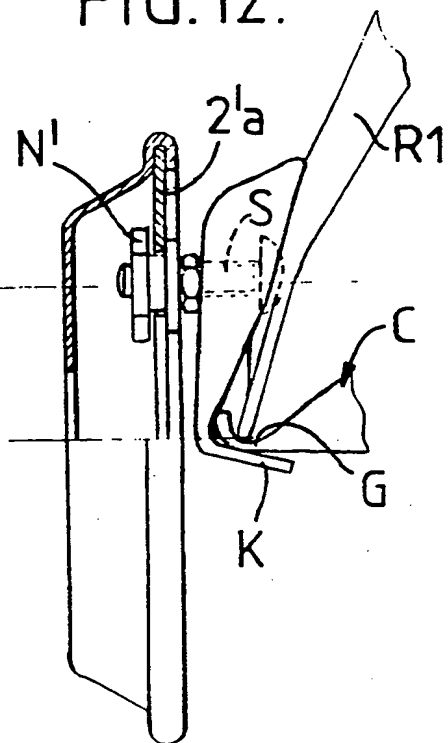


FIG.13.

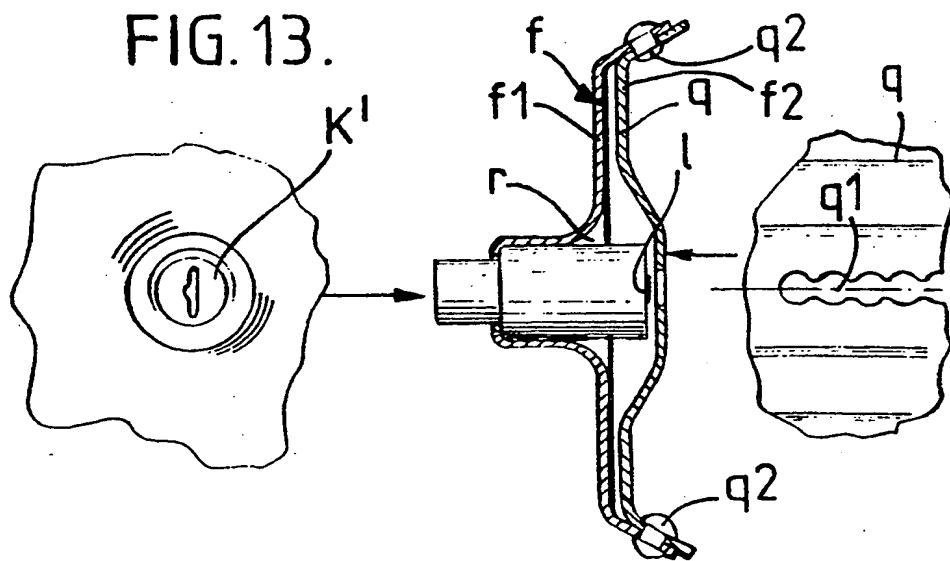


FIG. 14.

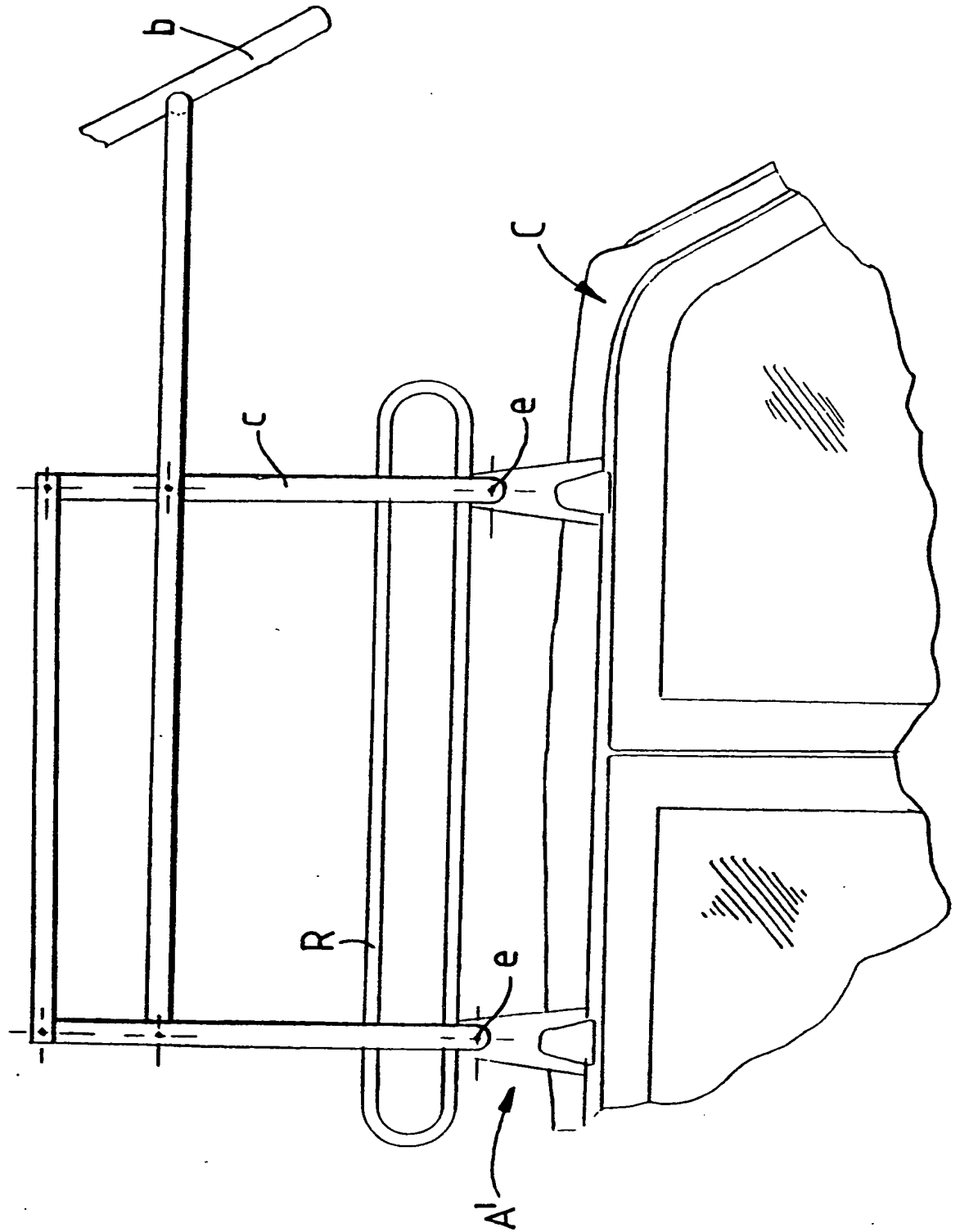


FIG. 15.

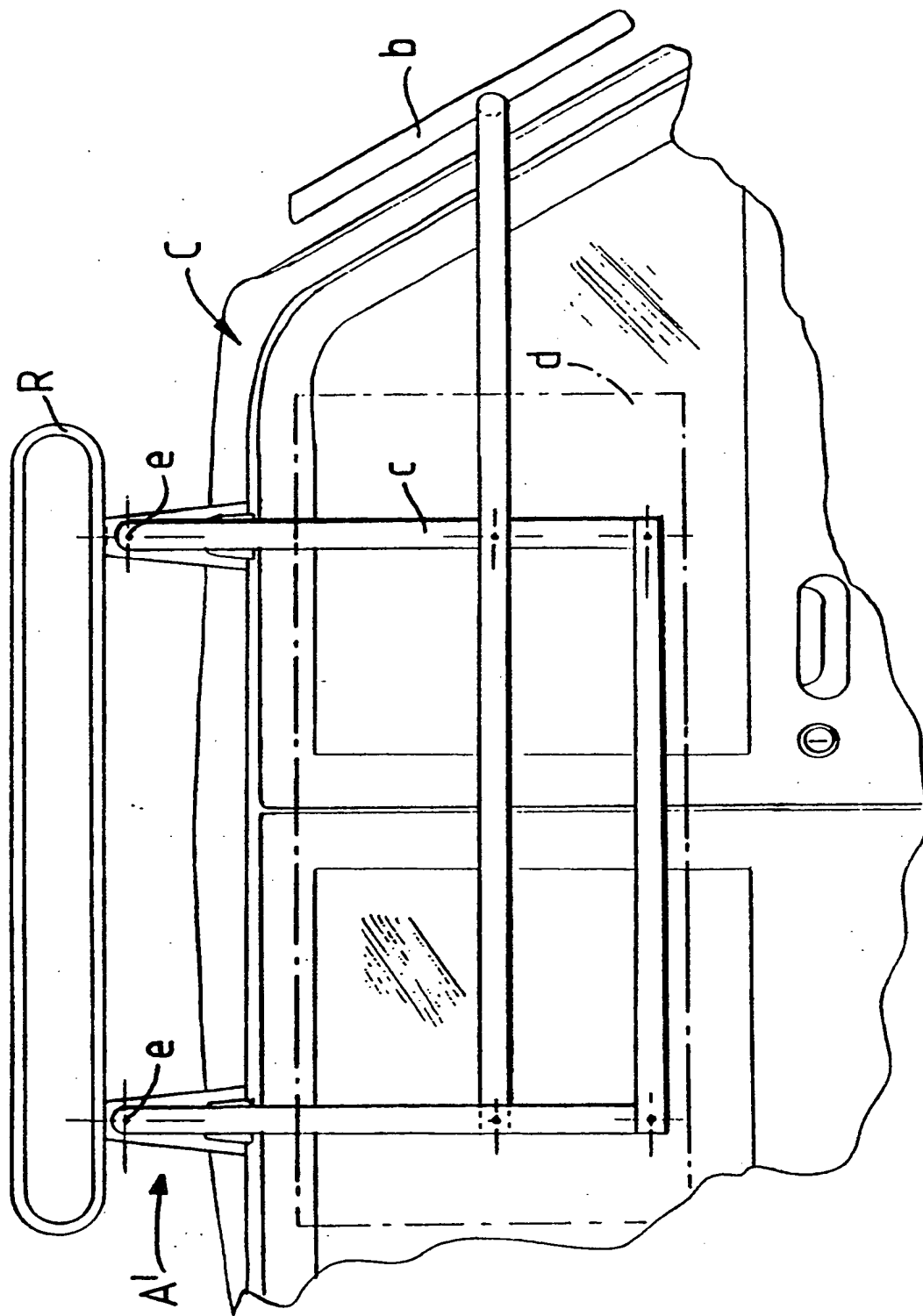


FIG. 15A.

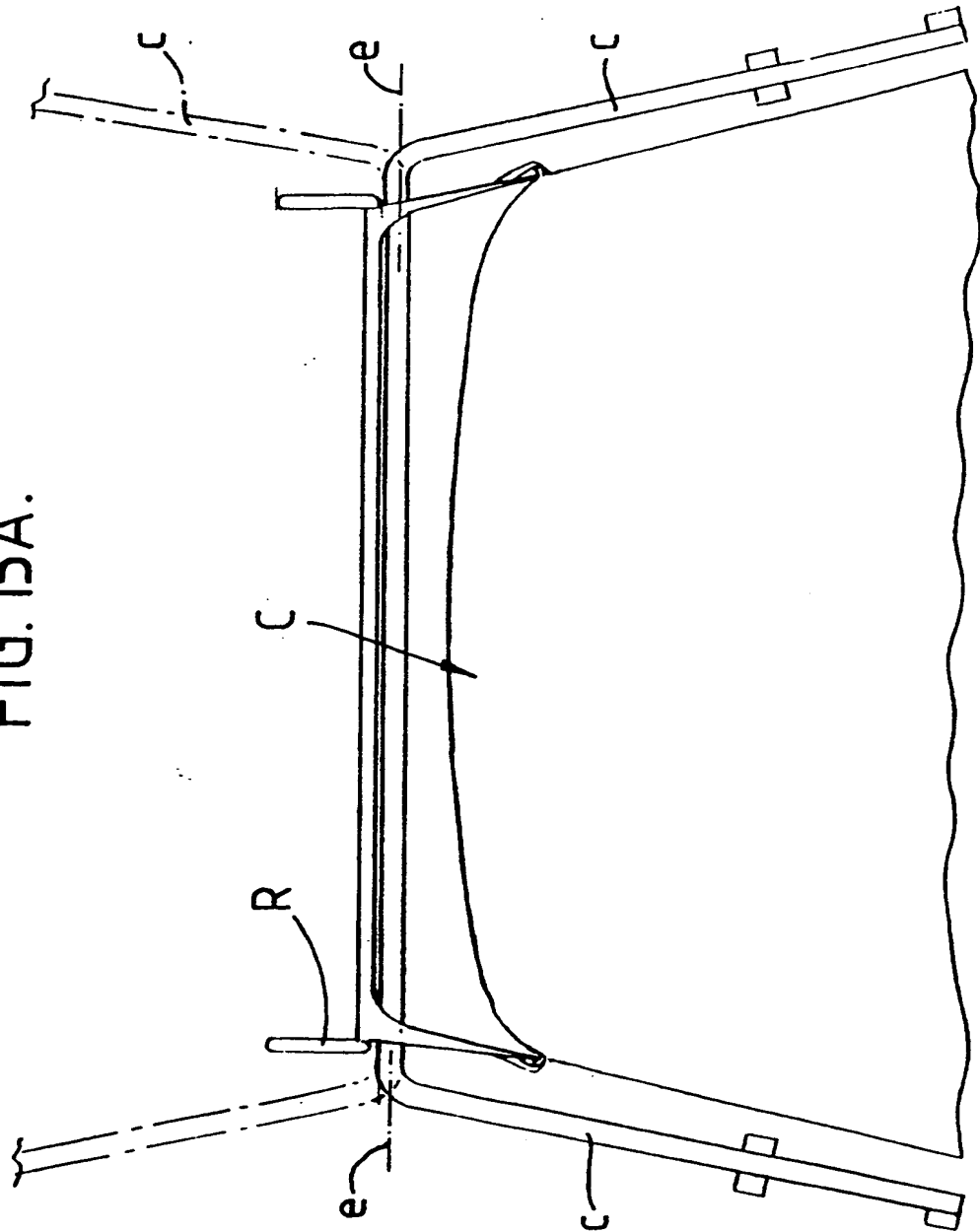
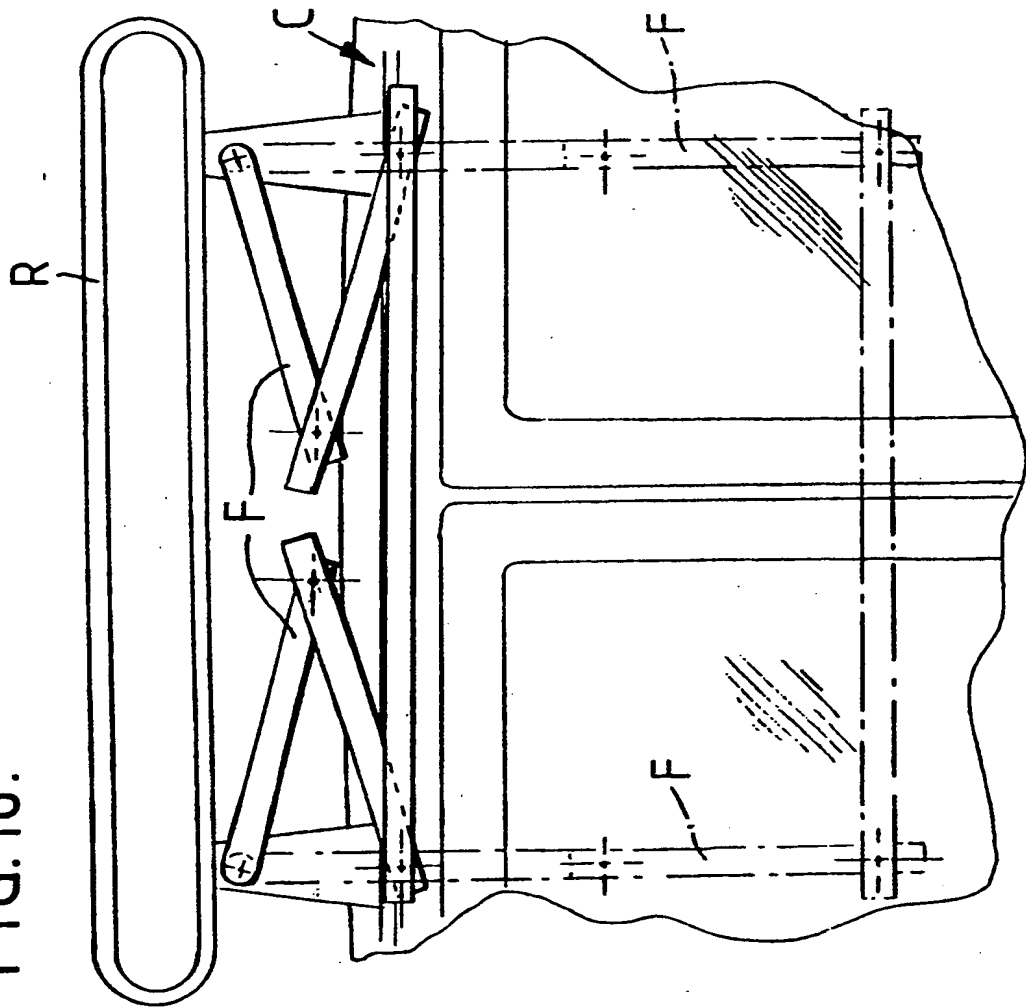
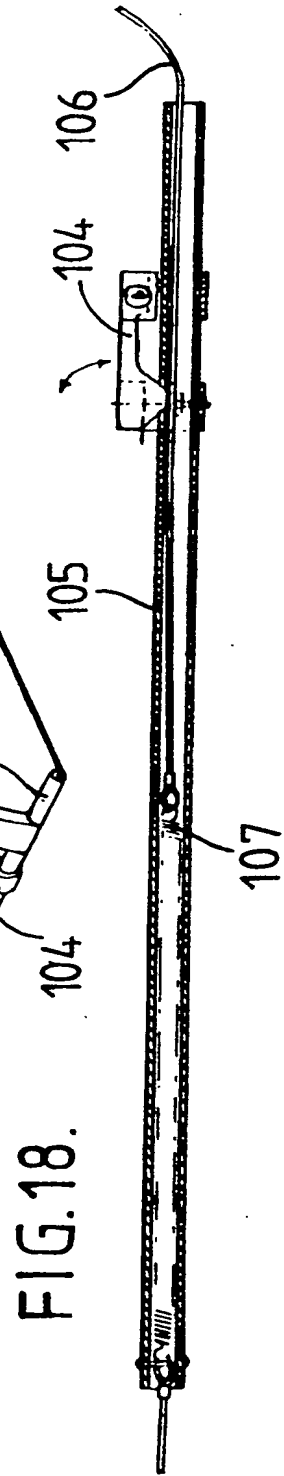
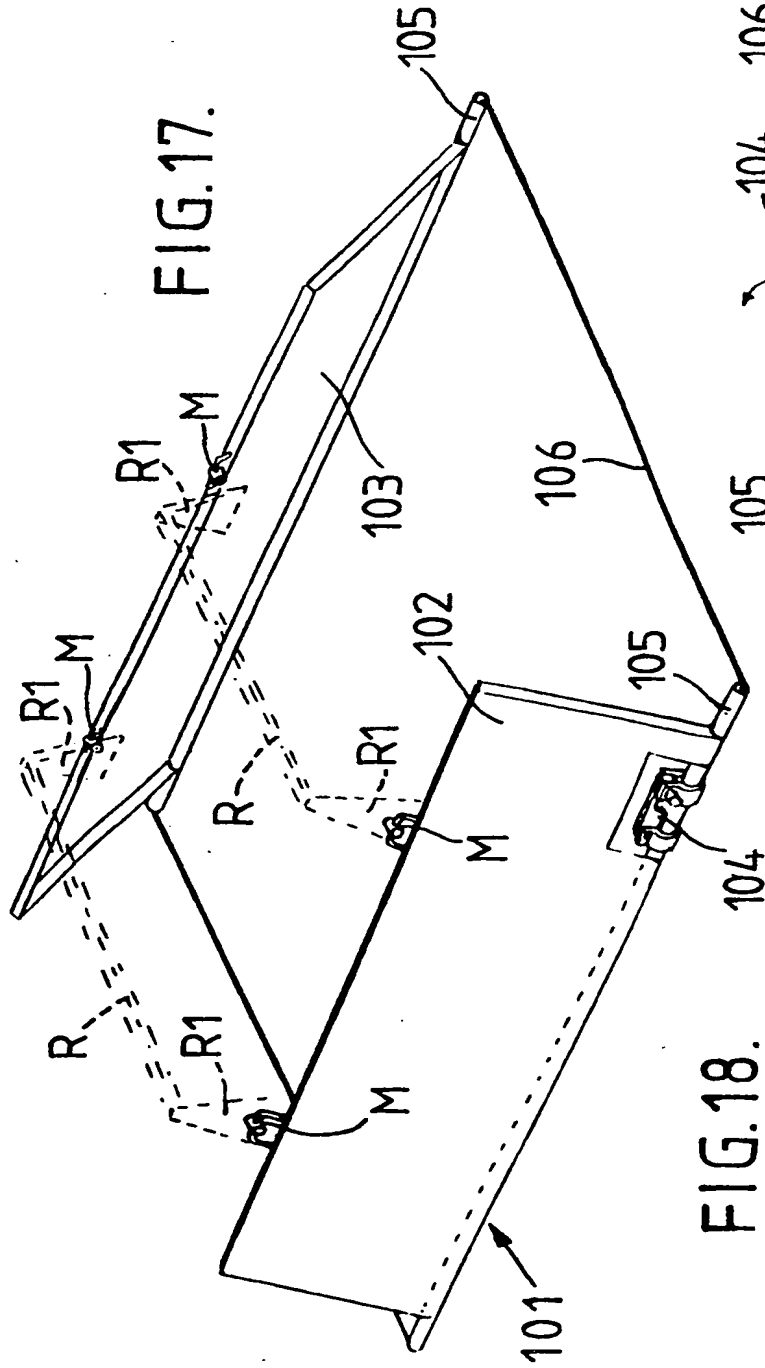


FIG. 16.





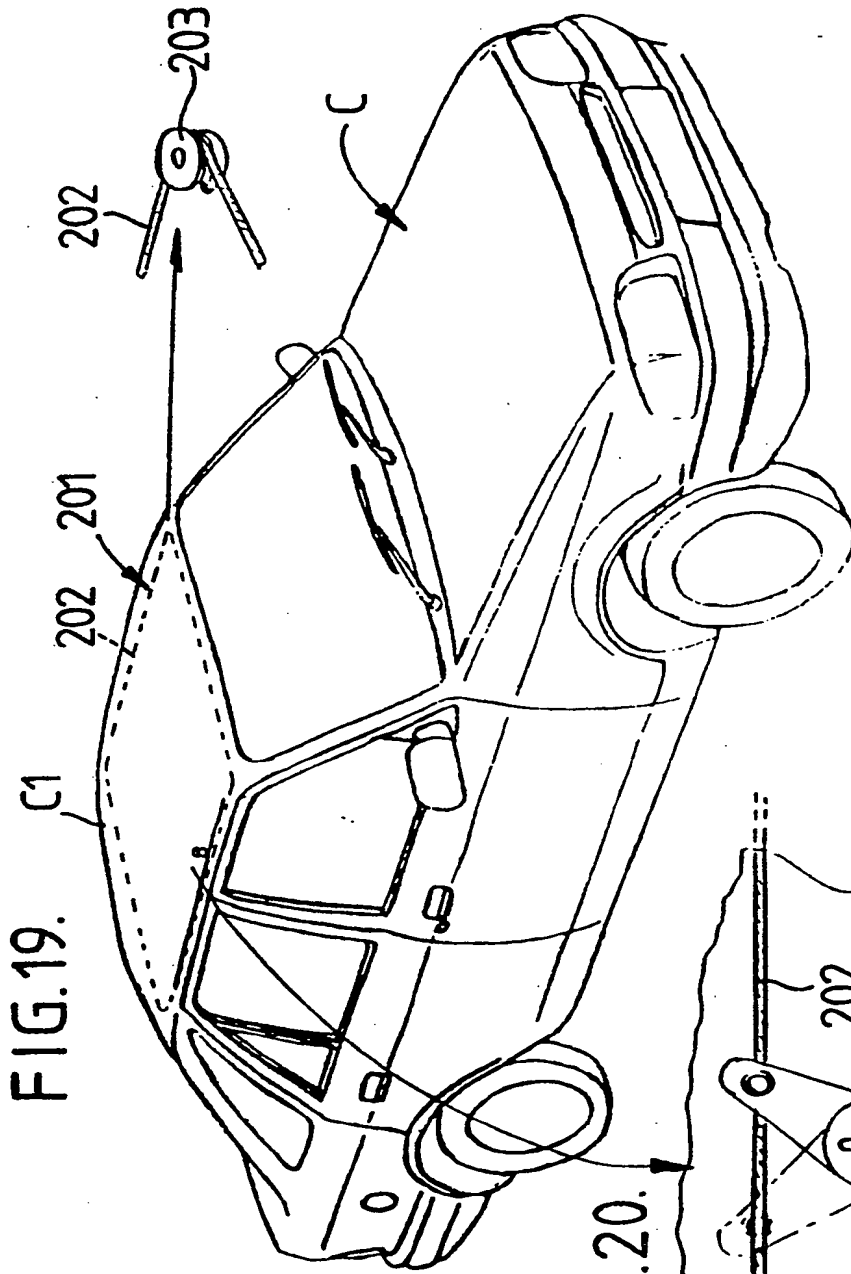


FIG.20.

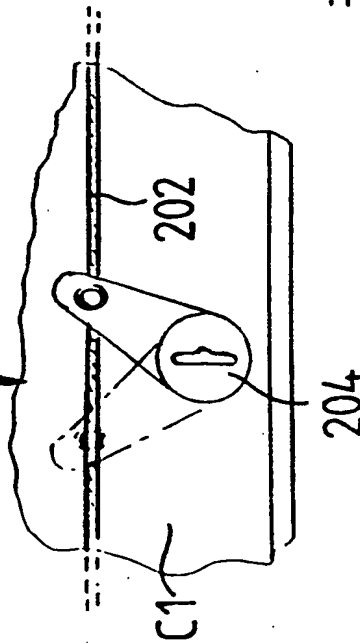


FIG.22.

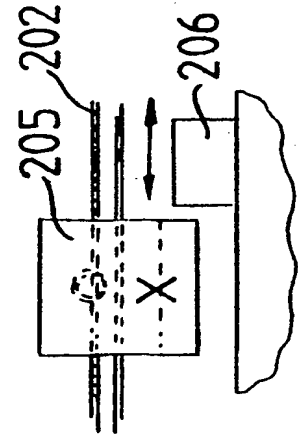
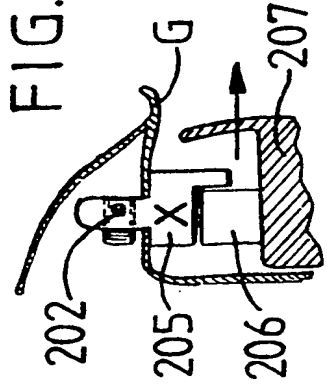


FIG.21.

FIG. 23.

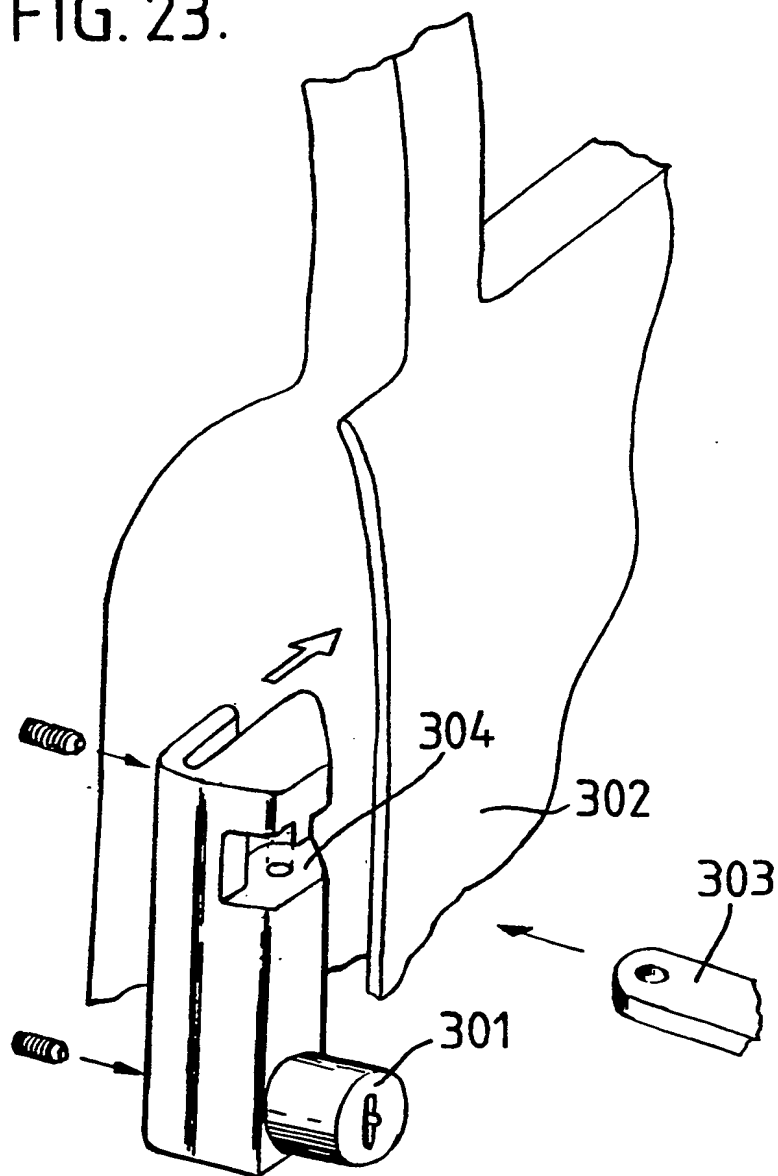
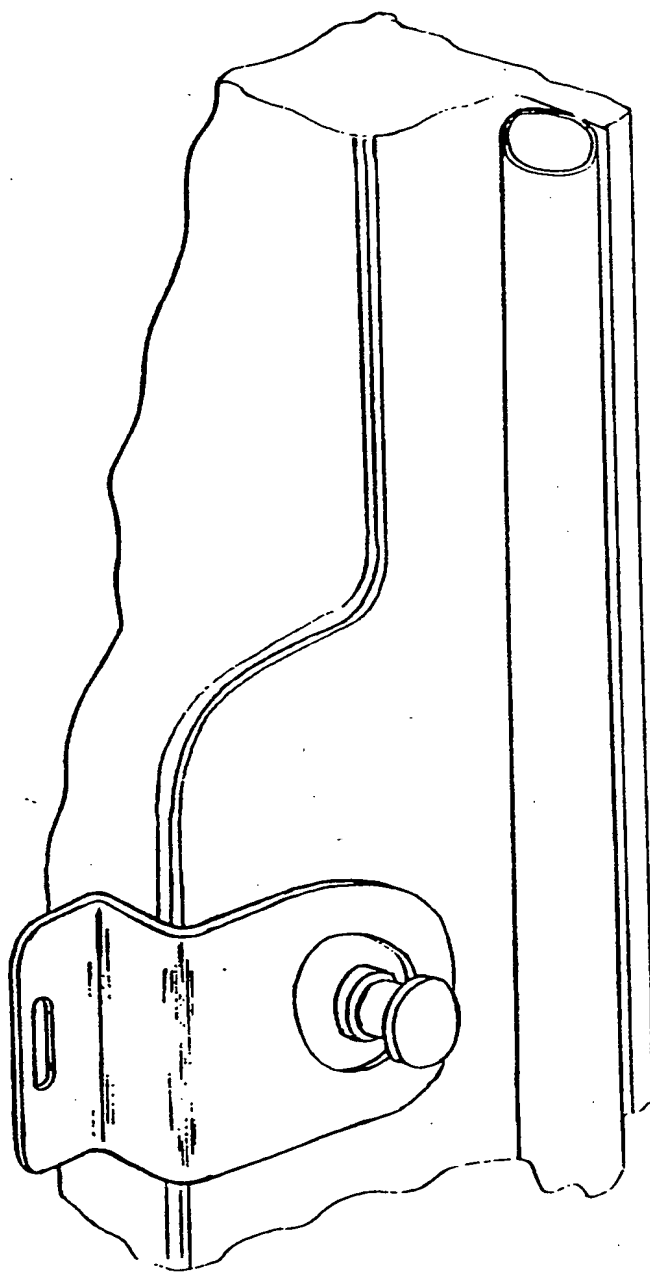


FIG. 23A.



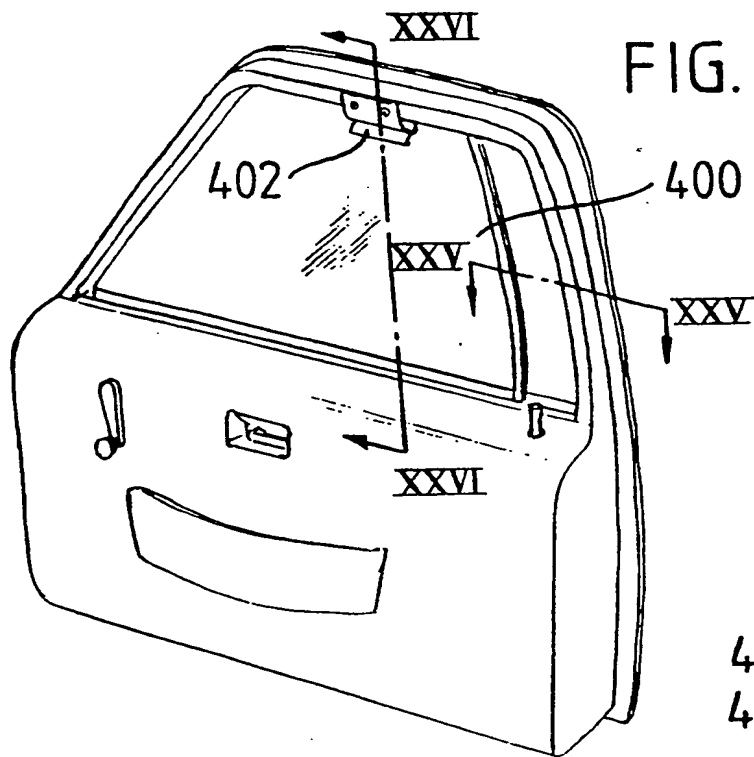


FIG. 24.

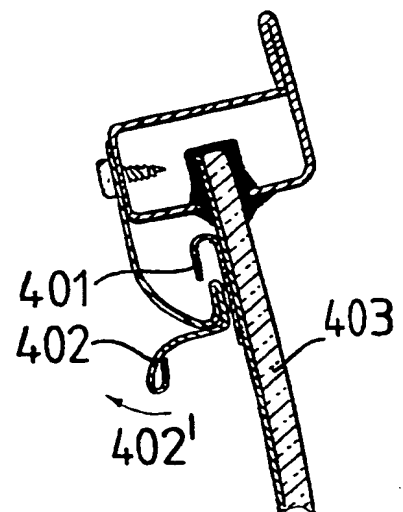


FIG. 26.

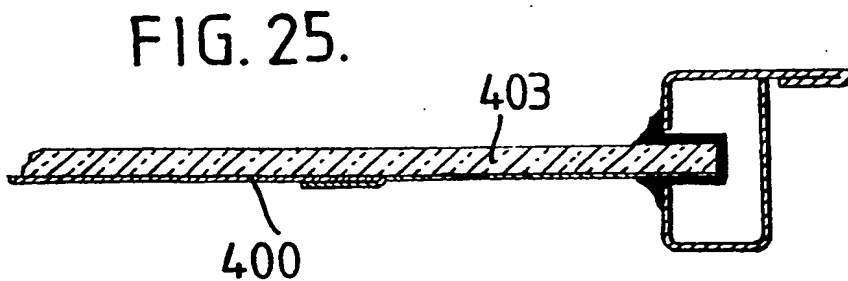
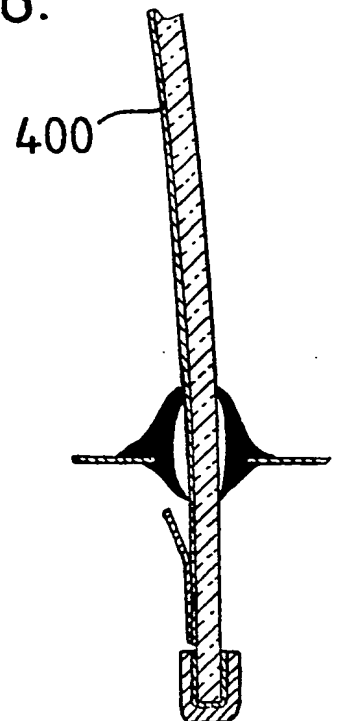


FIG. 25.



IMPROVEMENTS IN OR RELATING TO SECURITY IN VEHICLES

This invention relates to improvements in or relating to security in vehicles and is more particularly concerned with the provision of means capable of restricting access or entry into the vehicle.

Many proposals have been made to increase the level of security in vehicles and yet vehicle theft and theft of items from the vehicle are ever on the increase. All sorts of locking mechanisms including electronic central locking and burglar alarm systems have been developed and yet adequate security protection for vehicles remains a problem. Whenever security devices are employed to protect the vehicle a compromise between the cost of the security devices and the level of security provided has to be reached and such security devices would also usually have to blend in with, or at least not overly detract from, the appearance of the vehicle.

The Applicant has realised, regarding the compromise between costs and level of security provided, that when many car thefts occur the vehicle is broken into by means of relatively simple tools or equipment. Often the only tools used might be pliers and a screwdriver. This tends to be because if a suspected car thief is apprehended and found to be carrying more substantial tools (for example a crowbar) a non-criminal motive for being in possession of

such a tool would be difficult to establish and any sentence metered out by the Courts would probably be much greater if the car thief was found to be in possession of such tools. Thus, it is believed that the majority of car thieves tend only to use simple tools of the nature already discussed. Therefore, it is believed that the compromise between costs and level of security provided should be concentrated towards a level of security which will give protection against more simple tools and which may not necessarily be entirely effective against more substantial items such as crowbars or pickaxes.

It is an object of the present invention to at least alleviate the aforementioned, or other, problems relating to vehicle security, or to generally improve the level of security of a vehicle.

According to the present invention there is provided security apparatus for a vehicle, said security apparatus comprising external barrier means which is, in use, attached to the vehicle, said barrier means being movable from a first, out of the way, position to a second, locked position in which access or entry to the vehicle is restricted by the barrier means, said barrier means preferably:

- a) being attachable to the roof of the vehicle and/or
- b) having one or more barriers adapted to at least restrict opening of one or more side doors of the

vehicle and/or

- c) being part of or attachable to a roof rack of the vehicle, and/or
- d) having one or more barriers adapted to restrict access or entry through one or more side windows of the vehicle.

Preferably, the security apparatus includes two side barriers to protect the sides of the vehicle and will usually additionally include a front barrier to protect the windscreen of the vehicle (a rear barrier could also be provided to protect a rear window of the vehicle and/or rear doors of a van). Thus, even should entry be gained into the vehicle, if the front barrier remains in place, vision would be severely restricted effectively preventing the vehicle from being driven away. The side barriers may be arranged to be movable in unison with each other between the out-of-the-way position and the locked position (for example by means of a cable-pull) or, alternatively, the side barriers may be operable independently from one another.

In one embodiment of the present invention, the security apparatus is attachable to a roof rack of the vehicle and comprises two pivotable side barriers and preferably also a front barrier. Preferably, each side barrier can be pivoted to a lowered, locked position in which at least an upper part of side windows of the

vehicle are shielded by the side barriers, each side barrier additionally preventing the side door or doors of the associated side of the car from being opened. Thus, even should a side window be smashed and the lock on a side door broken the associated side barrier will not allow the door to open. Additionally, in hot weather it may be that the side windows can be left open at the top in order to allow air from outside to circulate around the vehicle, whilst still maintaining a high level of security for the vehicle; the side barriers will extend far enough down the side windows to cover the gaps left at the top of the open window from view. In an alternative embodiment it is possible that the side barriers (and front barrier where provided) will be arranged to completely cover the side windows (and front windscreen may be entirely covered by the front barrier if required). Each side barrier may comprise upper and lower portions hinged to one another and each portion may be fabricated from heavy gauge metal. Each side barrier may incorporate at least one key-operated lock which may act to lock the associated barrier in a lowered security position and the lock may or may not be incorporated into the structure of the vehicle. Since mounting of the lock in the vehicle would entail a permanent modification to the vehicle (for example by mounting a lock in a vehicle door post) it may be preferable to incorporate the locking mechanism entirely within the security apparatus itself. Usually, the security apparatus will be removably attached to roof rack

fitting bars. The security apparatus may comprise at least one mounting bracket attachable to a roof rack fixing bar with a side barrier thereof being hinged to the mounting bracket (about an axis parallel to the longitudinal axis of the vehicle). Preferably, at least two such brackets are provided and each bracket may support a side barrier carrier member connected to an upper side barrier portion. Preferably the carrier members are spring loaded on the brackets by spring means acting to urge the carrier members to an unlocked position allowing the side barrier to be swung to an out-of-the-way, raised position where, preferably, a lower end of the lower barrier portion can be retained to one end of the brackets (preferably by clip means). In the lowered, locked position of the side barrier each associated carrier member may be provided with tab means held in locking engagement with means on the brackets to restrict pivotal movement of the side barrier.

Many other advantages of this embodiment of the present invention will be apparent from the following description and drawings.

In an alternative arrangement of the present invention, the security apparatus may comprise one or more elongate, generally slim side barriers such that the, or each, side barrier can be moved from the out-of-the-way position to the locked position along a predefined slide

path. Where two side barriers are provided they are preferably operated by means of a cable pull. Preferably, in the security position the side barriers are just low enough to prevent the side doors from being opened.

In a further embodiment of the present invention, the security apparatus may be combined with a roof rack of the vehicle and may be swung from the out-of-the-way position to a lowered security position about an axis or axes which are parallel to the transverse axis of the vehicle. The security apparatus may also have a secondary support function for items in position on the roof rack.

Further according to the present invention there is provided security apparatus comprising a mechanical central locking system for locking a plurality of the doors of a vehicle simultaneously.

Further according to the present invention there is provided security apparatus in the form of at least one protective inner transparent window shield that can be fitted on the outside or inside of a vehicle as a safety barrier. The shield may be adhered to the window glass.

Many other advantageous features of the present invention will be apparent from the following description and drawings.

Embodiments of security apparatus for vehicles, in accordance with the present invention will now be described by way of example only with reference to the accompanying simplified, diagrammatic drawings in which:

FIGURE 1 shows a perspective view of a motor car fitted with a first embodiment of security apparatus in accordance with the present invention, said apparatus being attached to a roof rack of the motor car;

FIGURE 2 shows an enlarged view of part of the security apparatus looking in the direction of arrow A, said part of the security apparatus including a side barrier in a raised, unlocked position;

FIGURE 3 shows a view similar to FIGURE 2, drawn to a reduced scale, but with the side barrier in a lowered locked position;

FIGURE 4 shows a more detailed exploded view of a front windscreen barrier looking from the rear thereof;

FIGURE 5 shows a cut-away view of part of the vehicle looking in the direction of arrow B in FIGURE 1 and showing a front elevation of the side barrier in the locked position (i.e. looking in the direction of arrow D in FIGURE 3);

FIGURE 6 shows a perspective view of a component of the security apparatus with the side barrier omitted for clarity;

FIGURES 7 and 8 show views of a side barrier support member in locked and unlocked positions respectively;

FIGURES 9 and 10 show unlocked and locked views of a

side barrier of a second embodiment of the present invention;

FIGURE 11 shows an enlarged cut-away view of one end of the side barrier shown in FIGURES 9 and 10;

FIGURE 12 shows a sectional view taken on line XII-XII of FIGURE 11;

FIGURE 13 shows diagrammatic views of the locking mechanism of this second embodiment;

FIGURES 14 and 15 show unlocked and locked positions of a third embodiment of security apparatus in accordance with the present invention, when viewed from the side of a vehicle;

FIGURE 15A shows a rear view of the embodiment shown in FIGURE 15;

FIGURE 16 shows a further embodiment of security apparatus when viewed from the side of the vehicle, the locked position being shown in chain-dotted lines;

FIGURES 17 and 18 show diagrammatic views of a further embodiment of security apparatus in accordance with the present invention;

FIGURES 19 to 22 show views of a security apparatus in the form of a door central locking system;

FIGURE 23 shows mounting of a security lock of security apparatus, which lock could be utilised as part of any of the apparatus as shown, said lock being mounted onto the door of a vehicle;

FIGURE 23A shows mounting of a self-adhesive lock or keeper plate of security apparatus, onto the door of a

vehicle; and

FIGURES 24 to 26 show views of security apparatus for a vehicle comprising an inner window glass shield that may be fitted on the inside of a vehicle.

FIGURES 1 to 8 together illustrate the construction and operation of security apparatus 1 attached to a vehicle in the form of motor car C. The security apparatus 1 comprises external movable barrier means including side barriers 2,3 and front barrier 4. FIGURE 1 shows the barriers 2,3 and 4 in a raised, out of the way, position in which access or entry to the car is unrestricted by the barriers.

FIGURE 2 shows a cut-away view of FIGURE 1, showing side barrier 2 viewed in the direction of arrow A in FIGURE 1, in the raised position. The security barrier means 1 can be moved to a second, lower position in which the side barriers 2 and 3 are locked in place across side doors of the vehicle C and the front barrier 4 overlaps the front windscreen of the vehicle.

FIGURE 3 shows a view similar to FIGURE 2 but illustrates the position of the side barrier 2 in a lowered, locked position.

In the lowered, locked position of the security barrier means 1 the upper part of the front windscreen is

shielded by barrier 4 and the side windows are shielded by side barriers 2,3. Additionally, the side barriers 2,3 prevent the side doors from being opened in a manner which should be readily apparent. Thus, access into the vehicle is restricted by means of the side barriers 2,3 preventing the doors from being opened and access to the interior of the vehicle is severely restricted even should the glass in the windows be broken in an attempt to get into the vehicle.

As should be evident from FIGURES 1 to 8, the security barrier means 1 comprises an attachment that may be fitted to an existing roof rack of the vehicle C. In an alternative embodiment, the design of roof rack and security apparatus 1 could be integrated into a purpose-made structure rather than being an attachment to an existing roof rack. The roof rack is designated by the numeral R in FIGURES 1 to 8.

The security apparatus 1 includes four flat mounting plates 5 (see FIGURE 6) which in use are each arranged in a common horizontal plane above the roof of the vehicle C with an associated downwardly depending leg R1 of each roof rack fixing bar R2 extending through a rectangular hole 5A appropriately sized to fit said leg R1. Each plate 5 has an outwardly extending generally C-shaped portion 5B defining opposed lugs 5C which receive interfitting hook portions 6A of an associated bracket 6

on which an associated side barrier 2,3 is located in a manner yet to be described. Thus, each of the four downwardly depending legs R1 of the roof rack R carries an associated mounting plate 5 and an associated bracket 6 is hooked onto the lugs 5C by hook portions 6A. Thus, in order to fit the security apparatus 1 to an existing roof rack R the legs R1 are loosened from the car gully G by unscrewing the hand-operated lock nut (not shown) on threaded shaft S sufficiently to allow the captivating caps K (see FIGURE 2) to disengage from the gully G by an amount permitting the leg R1 to be introduced into aperture 5A of mounting plate 5. Thereafter, captivating caps K can be hooked back underneath the gulley G with the spaced hook portions 6A of the brackets 6 being hooked onto the lugs 5C and the shaft S is introduced through a receiving opening in generally vertically arranged lower plate portion 6B. Plate portion 6B is integral with, and bridges, outwardly directed parallel plate portions 6C which define hook portions 6A at their upper ends (see FIGURE 6). Plate portion 6B is held tightly in place by means of nut N screwed tightly down onto a threaded shaft S. Each bracket 6 is provided with opposed mounting holes 6D, each located on a respective plate portion 6C. Each bracket 6 provides a rigid mounting for locking, pivotable side-barrier, carrier members 7 (see FIGURES 5,7 and 8).

In FIGURE 5, two of the four side barrier carrier members 7 are shown and they are in a locked position (to

be explained later).

FIGURES 7 and 8 show views of a carrier member 7 in locked and unlocked positions respectively.

For each carrier member 7, a pivot pin 7a is passed through the axially aligned holes 6D in the associated bracket 6 and through axially aligned receiving holes in side walls of the carrier member 7. Pivot pin 7a is provided with a domed head at either end to permanently retain the carrier member 7 to the bracket 6 and said pin 7a passes through helical compression spring 7b (shown in dashed lines in FIGURES 7 and 8) said spring acting to urge the carrier member 7 to the locked position shown in FIGURE 7. The left-hand end 7'b of the spring 7b has a horizontal portion located in rear, semi-circular locating notch 6E (see FIGURE 6) in a respective one of the side plates of the bracket 6. A vertically extending spring portion 7e engages the inside wall of plate portion 6C whilst the opposite end 7f engages an inside wall of the carrier member 7 (see FIGURES 7 and 8). Thus, each carrier member 7 can be moved a short distance X (see FIGURE 7) relative to the associated bracket 6 as an associated side barrier 2,3 is moved in the longitudinal direction of the vehicle to facilitate locking and unlocking of the side barrier in a lowered position.

As will be evident from FIGURES 1 to 8, in the locked

position, locking tabs 7g (pressed out of opposed side walls of the associated carrier member 7, in a manner which should be evident from the drawings) engage under quadrant locking projections 6F located on respective side plates 6C of the bracket 6. As should be evident from FIGURE 7, key-operated lock 7h has been rotated to a locking position in which latch member 7i prevents an external force shifting carrier member 7 against the action of spring 7b to the position as shown in FIGURE 8. Latch 7i engages the inside face of plate portion 6C. Thus, in this position, carrier member 7 cannot be outwardly rotated about axis X-X provided by pivot pin 7a owing to the engagement of the locking tabs with the quadrant projection 6F in a manner which should be evident.

To unlock a respective carrier member 7 from its associated bracket 6 a key is inserted in lock 7h and the lock rotated until the latch 7i is free of the bracket 6. Then, an external force may be applied against the action of said spring 7b acting to urge the locking tabs 7g laterally from contact with the quadrant locking projections 6F on the bracket (see FIGURE 8). In order to lock the carrier members 7 to the bracket 6 in such manner that they cannot be rotated about respective axes X-X, the carrier members are first moved to the general position as shown in FIGURES 3 and 5 (upon which spring 7b automatically urges the locking tabs 7g into overlapping

engagement with quadrant locking projections 6F) and the lock 7h is locked by means of the key in order to retain the carrier members in that position against any external force.

Each side-barrier carrier member 7 has upper and lower elongate slots 7j and 7k to which an upper trapezium shaped part 2a,3a (see FIGURE 5) of the respective side barrier 2,3 is attached by any suitable means (for example nuts and bolts 2') as shown (see FIGURES 2 and 3). Each lower side barrier part 2b,3b is pivotally connected to the upper barrier part 2a by means of spaced tubular rivet pivots 2c (see FIGURE 5). A tubular rivet pivot 2c is shown in more detail in the enlarged, ringed, fragmentary view in FIGURE 5. The tubular rivet pivots 2c are located in overlapping boundary edge flange portions 2d and 2e of the lower and upper barrier portions respectively. Thus lower side barrier portion 2b can be swung from the bottom in the direction of arrow Z as shown in FIGURE 3, about pivot axis Y whilst the carrier members 7 pivot about axis X-X in the direction of arrow W to enable the side barrier 2,3 to be swung into the out-of-the-way position shown in FIGURE 2. In order to retain the side barrier 2,3 in the raised position, clips 8 (one shown in FIGURE 6) are moved to retain the lower end 2f of the lower side barrier portion 2b in place as shown in FIGURE 2 with the quadrant projections 6F seating snugly in the lower end 2f of the side barrier portion. In this way, the side barriers 2,3

can be raised and lowered to allow the vehicle side doors to be opened or to restrict them from being opened in the lowered position.

Simultaneously, as the side barriers 2,3 are raised or lowered, the front barrier 4 is likewise raised or lowered and is shown in more detail in FIGURE 4. FIGURE 4 shows a perspective view of the barrier 4 from the rear thereof and, as will be evident from FIGURE 4, barrier 4 is connected to a U-shaped rod framework 4a by two retaining brackets 4b screwed to rearwardly protruding transverse ribs 4c by means of nuts and bolts passing through associated flanges 4'b of retaining brackets 4b. The U-shaped rod structure 4a is connected to the inside of the lower barrier portion 2b via C-shaped fixing members 4d bolted to upper portion of the lower barrier portion 2b. The ends 4e of the rod framework 4a pass into sleeves 4f held in fixing members 4d in a manner which should be obvious from FIGURE 4 of the drawings.

The above description relates to one example only of security apparatus comprising external barrier means that can be lowered from an out-of-the-way position into a security position and other arrangements having the same function should be readily envisaged. The side barrier portions 2a,2b may be fabricated from heavy gauge metal. Whilst it is appreciated that a crowbar could possibly be utilised to lever a side barrier and break the lock,

nevertheless for reasons discussed earlier in the application it is believed that such security apparatus would provide a good measure of security.

FIGURES 9 to 13 relate to an alternative arrangement in which side barriers 2" can be fitted to a roof rack leg R1 of a vehicle C but in this arrangement each side barrier 2" is only moved through a short distance downwardly in order to restrict the side doors from being opened in a manner which does not obscure the side windows unlike the previously described arrangement.

Each barrier 2" comprises two-part elongate metal pressing f carrying opposed back plates 2'a at either end thereof, each back plate being mounted to a respective leg R1. The mounting of each back plate 2'a onto each leg R1 should be evident from FIGURE 12 and from the description relating to the previous embodiment. However, in this instance, nut N' is mounted onto the shaft S in such a manner that the associated back plate 2'a together with the front portion f of the side barrier 2" can move relative to the shaft S and nut N' along the predefined slot path P (cut out of backplate 2'a) shown in FIGURE 11 in dashed lines. The slot path P is generally U-shaped and FIGURE 11 depicts the position of the left-hand area of the barrier portion 2" relative to the nut N' and shaft S after the side barrier 2" has been lowered to the locked, security position. In order to move the side

barrier 2" into the out-of-the-way position, after the key operated lock K' has been operated, the side barrier 2" is moved to the left as denoted by arrow X' (see FIGURE 11) and then the barrier can be pushed upwards once the nut N' is at the top of the vertical portion of the slot path P until the nut reaches the bottom of the slot when the barrier can be moved to the right i.e. the opposite of arrow X, to locate in the end P1 of the slot path P in a manner which should be obvious from the drawings. The opposite end of side barrier 2" operates in a similar fashion to that described for said left-hand area of the barrier portion 2".

The advantage of this last-described arrangement over the first arrangement is that the side barriers can be operated in unison whereas in the first-described arrangement the side barriers 2,3 require independent operation from each side of the vehicle. It is envisaged that the side barriers may be operated by a cable-pull (not shown) in which case the U-shaped slot path P may be of a different angled shape to allow easier operation by the cable pull.

The two-part metal pressing f includes two overlapping plate portions f1, f2 which are interconnected by way of rivets passing through elongate slots allowing relative inward and outward sliding movement of the plate portions. Alternatively, plate portions f1, f2 may be

slidably interconnected by interlocking flanges rather than being rivetted together. Back plates 2'a are connected together via spring T (see FIGURE 11).

FIGURE 13 depicts the mounting of the lock K'. Lock K' is mounted in a matching receiving recess r in the rear of front plate portion f1 with a locking member l of the lock being co-operable to engage in a selected one of a row of receiving slots q1 in locking plate q (formed in plate portion f2).

FIGURES 14, 15 and 15A show side views of a further embodiment of the present invention. Security apparatus A' in FIGURES 14, 15 and 15A consist of a combination of swingable security barriers integrated into a roof-rack structure. FIGURE 14 shows the front barrier b mounted onto framework structure c carrying side barriers d (depicted in chain-dotted lines for ease of illustration). FIGURE 14 shows the security apparatus in the raised out-of-the-way position (in which the framework c may provide additional support for items placed on the top of the roof rack), whilst FIGURE 15 shows the apparatus A' in its lowered security position, said frame work c having been swung about pivot points e in a manner which should be evident from the drawings. Once the side security barriers d and front barrier d have been lowered into the security position, barriers d may be locked in place by any suitable means (for example by a locking mechanism

that extends through the side barriers d into the door post of the vehicle - see FIGURE 23 - or which locks the side barriers d to a suitable vehicle framework member).

FIGURE 16 shows a further alternative scissor-action linkage framework F that could be utilised for raising and lowering the side barriers (not shown for ease of illustration). The position occupied by the framework F in the security locking position is depicted in chain-dotted lines in this FIGURE.

FIGURES 17 and 18 show alternative views of a third embodiment of security apparatus 101 depicting two swingable barriers 102, 103 that are operable by means of a steel cable 106, the security apparatus 101 being shown in a lowered, locked position relative to a roof rack R depicted in chain-dotted lines. FIGURE 18 shows the operation of the cable pull and clamp lock 104, and is a sectional view taken through tubular member 105 of FIGURE 17. Side barriers 102, 103 are mounted to legs R1 of the roof rack by mounting respective means M. The tension spring 107 ensures the cable 106 is always pulled taut. Clamp lock 104 clamps the cable 106 when the swingable barriers 102, 103 are in the lowered position and thus they cannot be raised to an out of the way position.

FIGURE 19 shows security apparatus in the form of a mechanical central locking system 201 comprising a cable

202 located around pulleys 203 positioned at respective corners of the roof C1 of vehicle C. FIGURE 20 shows a scrap section of the key lock 204 and FIGURES 21 and 22 illustrate further details of the mechanism. L-shaped locking block 205 can be pulled by the cable 202 (on operating lock 204) to overlap detent 206 on a side door 207 to prevent the door from being opened in a manner which should be self-explanatory from the drawings.

FIGURE 23 shows possible mounting of a key-operated lock 301 near or about the flanges or edge part of a door 302 of a vehicle (not shown) said lock being utilisable with any of the aforementioned security apparatus by means of security staple 303 engaging into lock aperture 304 whereupon the staple 303 can be locked in place by key-operated lock 301.

FIGURE 23A shows a view similar to 23 except that a self-adhesive locking or keeper plate is attached to the edge of a door or door frame as shown which may co-operate with a locking member of a lock (not shown). The locking or keeper plate could be replaced by a cable.

FIGURE 24 shows security apparatus in the form of a two part protective inner window glass shield 400 that may be fitted on the inside of the vehicle as an added barrier to access to the vehicle should the glass of the window be broken. Alternatively, the window glass shield may be

fitted on the outside of, or be a laminated part of, the window.

FIGURES 25 and 26 show sectional views of the security device 400, the content of which should be generally self-explanatory. A hook 401 is engageable with locking member 402 to prevent the shield from being lowered with the window glass 403, unless member 402 is moved in the direction of arrow 402' as shown. Shield 400 may be glued to the window glass 403. Hook 401 and locking member 402 may not be required if the strength of security device 400 is such that adequate security against forced entry is already provided.

It is to be understood that the scope of the present invention is not to be unduly limited by the particular choice of terminology and that a specific term may be replaced by any equivalent or generic term where sensible. For example, the term lock means could replace the term lock where appropriate. Further it is to be understood that individual features, methods or functions or any combinations of same related to the security apparatus or parts thereof might be individually patentably inventive.

CLAIMS

1. Security apparatus for a vehicle, said security apparatus comprising external barrier means which is, in use, attached to the vehicle, said barrier means being movable from a first, out of the way, position to a second, locked position in which access or entry to the vehicle is restricted by the barrier means, said barrier means preferably:
- 10 a) being attachable to the roof of the vehicle and/or
 - b) having one or more barriers adapted to at least restrict opening of one or more side doors of the vehicle and/or
 - c) being part of or attachable to a roof rack of the vehicle, and/or
 - 15 d) having one or more barriers adapted to restrict access or entry through one or more side windows of the vehicle.
- 20 2. Apparatus as claimed in Claim 1 in which the barrier means includes two side barriers to protect the sides of the vehicle.
3. Apparatus as claimed in Claim 1 or Claim 2 in which
- 25 the barrier means includes a front barrier to protect the windscreen of the vehicle and/or a rear barrier.
4. Apparatus as claimed in Claim 2 or Claim 3 when

dependent therefrom in which the side barriers are arranged to be movable in unison with each other between the out-of-the-way position and the locked position.

5 5. Apparatus as claimed in Claim 4 in which the side barriers are movable by means of a cable pull.

6. Apparatus as claimed in any one of Claims 1 to 4 in which the side barriers are operable independently from
10 one another.

7. Apparatus as claimed in any one of the preceding claims which is attachable to a roof rack of the vehicle and comprises two pivotable side barriers.

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8. Apparatus as claimed in Claim 7 comprising a front barrier.

9. Apparatus as claimed in Claim 7 or 8 in which each
20 side barrier can be pivoted to a lowered, locked position in which at least an upper part of side windows of the vehicle are shielded by the side barriers, each side barrier additionally preventing the side door or doors of the associated side of the car from being opened.

25

10. Apparatus as claimed in any one of Claims 7 to 9 in which the side barriers (and front barrier where provided) are arranged to completely cover the side windows (and

front windscreen can be entirely covered by the front barrier if required).

11. Apparatus as claimed in Claim 10 in which each side
5 barrier comprises upper and lower portions hinged to one another.

12. Apparatus as claimed in Claim 11 in which each portion is fabricated from heavy gauge metal.

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13. Apparatus as claimed in any one of Claims 7 to 12 in which each side barrier incorporates at least one key-operated lock.

15 14. Apparatus as claimed in Claim 13 in which said lock acts to lock the associated barrier in a lowered security position.

15. Apparatus as claimed in Claim 13 or 14 in which the
20 lock is incorporated into the structure of the vehicle.

16. Apparatus as claimed in any one of claims 7 to 15 which is removably attachable to roof rack fixing bars.

25 17. Apparatus as claimed in Claim 16 in which the security apparatus comprises at least one mounting bracket attachable to a roof rack fixing bar with a side barrier thereof being hinged to the mounting bracket (about an

axis parallel to the longitudinal axis of the vehicle).

18. Apparatus as claimed in Claim 17 in which at least two such brackets are provided.

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19. Apparatus as claimed in Claim 18 in which each bracket supports a side barrier carrier member connected to an upper side barrier portion.

10 20. Apparatus as claimed in Claim 19 in which the carrier members are spring loaded on the brackets by spring means acting to urge the carrier members to an unlocked position allowing the side barrier to be swung to an out-of-the-way, raised position.

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21. Apparatus as claimed in Claim 20 in which in said raised position a lower end of the lower barrier portion can be retained to one end of the brackets.

20 22. Apparatus as claimed in any one of Claims 7 to 21 in which, in the lowered, locked position of the side barrier each associated carrier member is provided with tab means held in locking engagement with means on the brackets to restrict pivotal movement of the side barrier.

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23. Apparatus as claimed in any one of Claims 1 to 6 comprising one or more elongate, generally slim side barriers such that the, or each, side barrier can be moved

from the out-of-the-way position to the locked position along a predefined slide path.

24. Apparatus as claimed in Claim 23 in which the side
5 barriers are operated by means of a cable pull.

25. Apparatus as claimed in Claim 23 or 24 in which in the security position the side barriers are just low enough to prevent the side doors from being opened.

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26. Apparatus as claimed in Claim 1 which is combined with a roof rack of the vehicle and can be swung from the out-of-the-way position to a lowered security position about an axis or axes which, in use, are parallel to the
15 transverse axis of the vehicle.

27. Apparatus as claimed in Claim 26 which has a secondary support function for items in position on the roof rack.

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28. Security apparatus for a vehicle, substantially as herein described with reference to FIGURES 1 to 8, or FIGURES 9 to 13, or FIGURES 14, 15 and 15A, or FIGURE 16, or FIGURES 17 AND 18, OR FIGURES 19 to 22, or FIGURE 23 or
25 FIGURE 23A, or FIGURES 24 to 26 of the accompanying drawings.

29. Security apparatus comprising a mechanical central

locking system for locking a plurality of the doors of a vehicle simultaneously.

30. Security apparatus in the form of at least one
5 protective inner transparent window shield that can be
fitted on the outside or inside of a vehicle as a safety
barrier.

31. Apparatus as claimed in Claim 31 in which the shield
10 is adhered to the window glass.

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Application number

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Relevant Technical fields

- (i) UK Cl (Edition K) B7J
- (ii) Int CL (Edition 5) B60R 25/00

Search Examiner

COLIN THOMPSON

Databases (see over)

- (i) UK Patent Office
- (ii) ONLINE DATABASE: WPI

Date of Search

2 JULY 1992

Documents considered relevant following a search in respect of claims

1-28

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2177058 A (PALING) whole document relevant	1,5
X	GB 384578 (WENSLEY) see especially page 1 lines 38-48	1,3
X	GB 375801 (KAATZ) see figures 1 to 4	1,3
X	GB 242733 (ABRAHAMS) whole document relevant	1,2,3
X	EP 0364062 A2 (MARSHALL) whole document relevant	1,2,3,4, 23,25
X	US 5035458 (BOENSCH) whole document relevant	1,2,3,4, 23,25
X	US 4648644 (SWANSON) whole document relevant	1,2,6,23

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

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